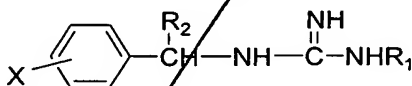


WHAT IS CLAIMED IS:

1. A method of defoliating plants comprising applying to plants an effective amount of a first active ingredient selected from the group consisting of substituted nitroguanidine and cyanoguanidine compounds of the formula (I) :



(I)

wherein R<sub>1</sub> is NO<sub>2</sub> or CN; R<sub>2</sub> is CH<sub>3</sub>, C<sub>2</sub> H<sub>5</sub>, CF<sub>3</sub>, n-C<sub>3</sub> H<sub>7</sub>, CH<sub>2</sub> OCH<sub>3</sub> or CH<sub>2</sub>CH=CH<sub>2</sub>; X is hydrogen, o-F, m-F, p-F, m-OCH<sub>3</sub>, m-OH or p-Cl; and

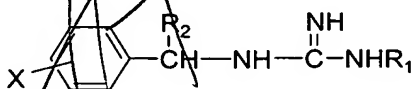
the salts, tautomers and optical isomers thereof;

an effective amount of a second active ingredient selected from the group consisting of thidiazuron, diuron, ethephon, protoporphyrinogen oxidase (PPO) inhibitor herbicides; and, optionally, an adjuvant;

wherein the weight ratio of the first active ingredient to the second active ingredient is from about 1:0.05 to about 1:200.

2. A method according to Claim 1, wherein the application rate of the first active ingredient is from about 0.03 to about 0.5 lbs/acre and the application rate of the second active ingredient is from about 0.005 to about 10 lbs/acre.

3. A method according to Claim 1, wherein the first active ingredient is selected from the group consisting of (+)-isomers, (-)-isomers and mixtures thereof of guanidine compounds having the formula:



wherein R<sub>1</sub> is NO<sub>2</sub> or CN; R<sub>2</sub> is CH<sub>3</sub>, C<sub>2</sub> H<sub>5</sub> or CF<sub>3</sub>; and X is hydrogen, o-F, m-F, p-F, m-OCH<sub>3</sub>, m-OH or p-Cl.

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4. A method according to Claim 1, wherein the first active ingredient is 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

5. A method according to Claim 4, wherein the 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine is (+)-1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

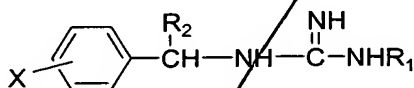
6. A method according to Claim 4, comprising applying to plants 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine at a rate of from about 0.03 to about 0.5 lbs/acre and the second active ingredient at a rate of from about 0.005 to about 10 lb/acre.

7. A method according to Claim 6, wherein the 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine is (+)-1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

8. A method according to Claim 1, wherein the plant is cotton.

9. A method according to Claim 1, comprising applying to plants an effective amount of a composition comprising 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine and thidiazuron.

10. A method of inhibiting leaf regrowth in cotton comprising applying to cotton an effective amount of a guanidine compound having the formula (I):



(I)

wherein  $\text{R}_1$  is  $\text{NO}_2$  or  $\text{CN}$ ;  $\text{R}_2$  is  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$  or  $\text{CF}_3$ ; and  $\text{X}$  is hydrogen, o-F, m-F, p-F, m- $\text{OCH}_3$ , m-OH or p-Cl, and the salts, tautomers and optical isomers thereof.

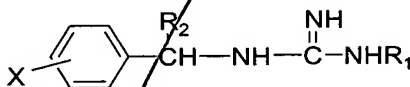
11. A method according to Claim 10, wherein the guanidine compound is 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

12. A method according to Claim 10, wherein the guanidine compound is in the form of a composition comprising the guanidine compound and an ingredient selected from herbicides, adjuvants, plant growth regulators, fertilizers and defoliants other than guanidine compounds having the formula (I).

13. A method according to Claim 10, wherein the guanidine compound is in the form of a composition comprising the a guanidine compound and an adjuvant selected from crop oil concentration, vegetable oil concentrate, ammonium sulfate and combinations thereof

14. A method according to Claim 10, wherein the guanidine compound is in the form of a composition further comprising from about 0.2% to about 1%, by volume, adjuvant.

15. A method of inhibiting leaf regrowth in cotton comprising applying to cotton an effective amount of a first active ingredient selected from the group consisting of (+)isomers and (-)-isomers of guanidine compounds having the formula:



wherein  $\text{R}_1$  is  $\text{NO}_2$  or  $\text{CN}$ ;  $\text{R}_2$  is  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$  or  $\text{CF}_3$ ; and X is hydrogen, o-F, m-F, p-F, m- $\text{OCH}_3$ , m-OH or p-Cl;

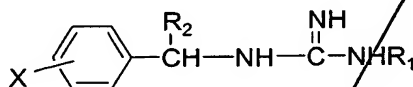
an effective amount of a second active ingredient selected from the group consisting of thidiazuron, diuron, ethephon, protoporphyrinogen oxidase (PPO) inhibitor herbicides, ammonium sulfate and combinations thereof; and, optionally, adjuvant.

16. A method according to Claim 15, wherein the first active ingredient is 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine and the second active ingredient is thidiazuron and further wherein the weight ratio of 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine and thidiazuron from about 1:0.05 to about 1:200.

17. A method according to Claim 15, wherein the first active ingredient is (+) 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

18. A method according to Claim 15, wherein the first active ingredient comprises a guanidine compound selected from the group consisting of (+) 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine, (-) 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine and combinations thereof.

19. A composition comprising a first ingredient selected from the group consisting of substituted nitroguanidine and cyanoguanidine compounds of the formula (I):



(I)

wherein  $\text{R}_1$  is  $\text{NO}_2$  or  $\text{CN}$ ;  $\text{R}_2$  is  $\text{CH}_3$ ,  $\text{C}_2\text{H}_5$ ,  $\text{CF}_3$ ,  $\text{n-C}_3\text{H}_7$ ,  $\text{CH}_2\text{OCH}_3$  or  $\text{CH}_2\text{CH}=\text{CH}_2$ ;  $\text{X}$  is hydrogen, o-F, m-F, p-F, m- $\text{OCH}_3$ , m-OH or p-Cl; and the salts, tautomers and optical isomers thereof; and  
and a second ingredient selected from the group consisting of herbicides, adjuvants, plant growth regulators, desiccant, boll opening compounds, pesticides, fertilizers and defoliants other than guanidine compounds having the formula (I);

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wherein the composition is in the form of a liquid comprising the first ingredient and the second ingredients at amounts sufficient to provide from about 0.03 to about 0.5 lb/acre of first ingredient and from about 0.005 to about 10 lb/acre of second ingredient.

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20. A composition according to Claim 19, wherein the composition is in the form of a liquid comprising from about 0.2% to about 1%, by volume, adjuvant.

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21. A composition according to Claim 19, wherein the second ingredient is present in an amount sufficient to enhance the defoliation and/or regrowth control activity of the first ingredient.

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22. A method according to Claim 1, wherein the first ingredient is 1-( $\alpha$ -ethylbenzyl)-3-nitroguanidine.

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